



Comparative Assessment of Rural Development Programmes in Panchayats of Himachal Pradesh Using Geo-informatics

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Key words: Panchyat , spatial, GIS, remote sensing

ABSTRACT

The spirit of India lives in villages and only by changing the face of rural areas, there will be better future for the State and nation as a whole. The Rural Development Department is engaged in changing the face of rural Himachal through its many fold development schemes, working in a participatory manner with the rural folks. Whereas the natural resources of a region are the divine assets which significantly contribute to development of that region, the infrastructure is treated as an engine of growth and provides a basic framework for economic and social progress. The Physical infrastructure strengthens the economy, boosts investment, attracts prospective entrepreneurs and helps alleviation of poverty and reduces unemployment incidence. The social infrastructure like drinking water supply, sanitation, education, health etc. helps in improving quality of life of rural inhabitants. The Rural Development Department is responsible for implementing various national and state level schemes/programmes aimed at improving economic and social status of rural inhabitants by development of socio-economic infrastructure in rural India. The panchayats are fundamental and grass root level units in rural India. Despite sustained efforts, regional disparities are observed in implementation of rural development programmes. The advanced spatial information technologies provide effective and meaningful tools for examination/evaluation of the rural development made under Centre and state sponsored schemes. To harness benefits of Space Technology and Geo-informatics for mapping assets developed under various rural development schemes, a study was attempted for Comparative assessment of implementation of rural development programmes in Pujarali, Chamyanna and Malyanna panchayats of Himachal Pradesh. The panchayat resources information system was designed for the identification and mapping of the local resources spatially and understanding the problems and potentialities of each resource. It provides the basic details in GIS format and will serve as a base for planning as well as comparison of the development activities in rural areas.

1. INTRODUCTION

Recent technological advances in domain of spatial technology are making considerable impact in planning related activities. Timely and reliable information on cost effective manner in spatial and temporal domain, which can act as a reliable base line information on natural resources at scale ranging from regional to micro levels, can be generated by Geographic Information System (GIS), which can help for integrated analysis of natural resources inventory, management and planning the strategy for sustainable development and stand as a power effective administrative and management tool for decision making besides evaluation of developmental activities. The GIS provides an added dimension to data analysis which brings us one step closer to visualizing the complex patterns and relationships that characterize real-world planning and policy problems. (Ambasta, 2010; Asadi et al., 2011; Manikkumaran, 1997; Mukherjee, 2011; Scaria and Vijayan 2012; Jain K and Subbaiah, 2007). . In the view of above, a study was attempted for Comparative assessment of implementation of rural development programmes in Pujarali, Chamyanna and Malyanna panchayats of Himachal Pradesh.

2. MATERIALS & METHODOLOGY

2.1 Study Area

The Three Panchayats selected for the present study named Chamyanna, Malyanna and Pujarali lie in the Mashobra block of Shimla district and are adjoining to the Shimla Urban Area. The Shimla District lies between 30°45" to 31°44"N Latitude and 77°0" to 78°19"E Longitude. It has geographical area of 5131 sq. km (Balokhra, 2005; Jeart, 2005).

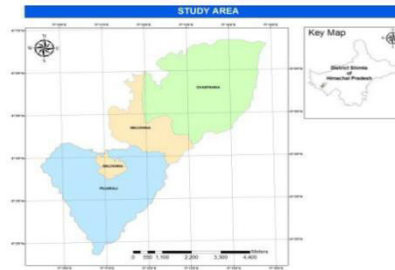


Figure1 Location map of Study Area

2.2 Data Used

The details of various spatial and non-spatial data used in this study area are given below:

2.2.1 Remote Sensing Data

Cartosat - I images are the basic remote sensing data which has been used for mapping the Panchayats.

2.2.2 Ancillary/Collateral Data

Administrative boundary of State, District, Block and Panchayat, Panchayat Asset Registers

2.2.3 Ground Truth Data

The location of various natural and manmade resources was determined with the help of Maps and Global Positioning System.

2.2.4. Mapping & Creation of Geo-database

Field Survey: The Ground Control Points (GCPs) were taken using GPS Mobile (Samsung Wave 525)

Geo-Referencing: The satellite data was geo-referenced in Arc GIS

Layer Creation: The following raster and vector layers were created in Arc GIS

- Land use/Land Cover
- Digital Elevation Model,
- Drainage,
- Roads
- Water Tanks
- Educational Facilities
- Medical Facilities
- Veterinary Institutions
- Anganwaris
- Other Socio-economic structures

Map Creation:-The map outlay was created in Arc GIS

3. RESULTS & DISCUSSION

3.1 Natural Resources

3.1.1 Land use/Land cover & Digital Elevation Model

The total sprawl of the study area covering three panchyats is 32.07 sq. km. Approximately 14.37 sq. km, 3.63 sq. km., 12.65 sq. km. and 1.42 sq. km area falls under forest, agriculture and grassland and settlements respectively.

The catchment area of the Chamyanna Panchayat, Sargheen, Goasn and Beolia Villages of Pujarali Panchayat and the Malyanna village of the Malyanna Panchayat are extensively covered by the rich forests. Vegetables are mainly grown on agriculture area in all the three Panchayats (**Figure 2**).

The elevation in the study area ranges between 1238-2601m in the study area (**Figure 3**).

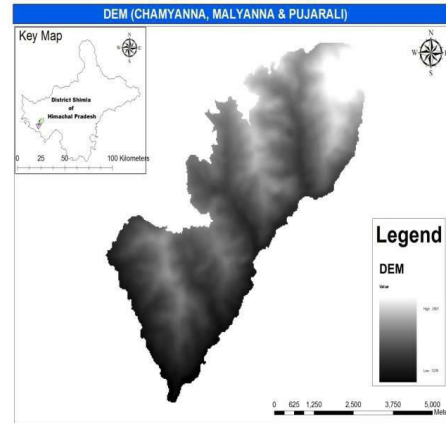
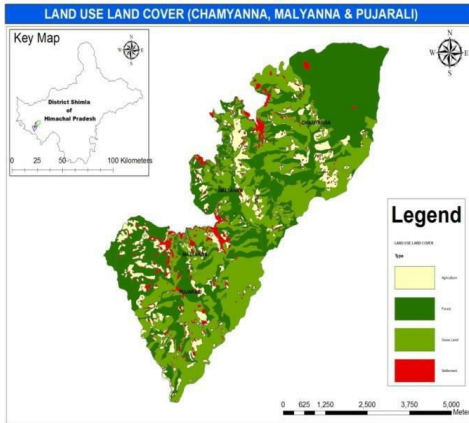


Figure 2 Landuse /Landcover of the study area

Figure 3 Digital Elevation Model of the study area

3.1.2 Drainage & Hydrology

There are three main streams in the study area. All these meet at a point called ‘Dogla Nala’. These carry excess rain water from hills in the rainy season. Physiography of the three panchayats separates these from each other and meets near the Sadhupul and Dogla Nala.

Figure 5 represents the hydrological system of the study area and includes drainages, water tanks, tubewells, bawadies and hand pumps. Water tanks are mainly constructed under the Mahatma Gandhi National Rural Employment Guarantee Act (MNREGA) scheme. Bawadies are mainly used for drinking water.

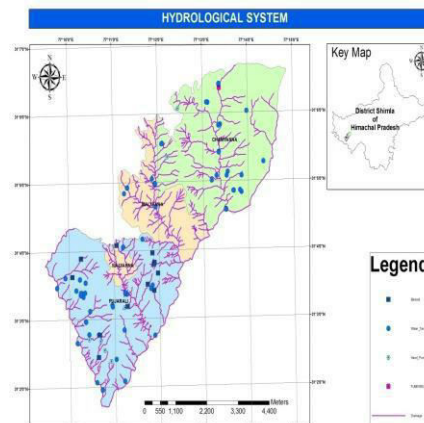
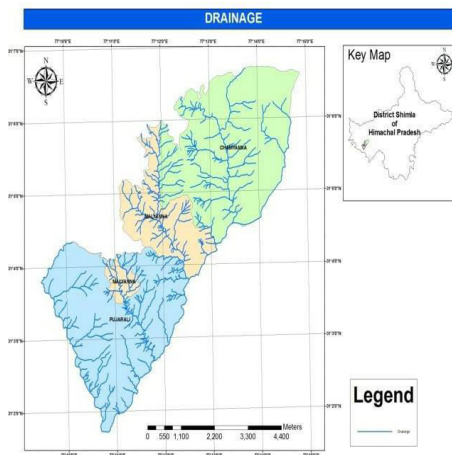


Figure 4 Drainage system in the study area

Figure 5 Hydrological system in the study area

3.2 Infrastructure

3.2.1 Medical Institutions & Veterinary Institutions

The primary health centres are the only medical institution in the study area. They provide the basic medical facilities and other medical aids to the villagers. **Figure 6** depicts the location of health centres in the study area. The Chamyanna panchyat has one Primary Health centres while pujarali panchyat has one primary health centre and one Ayurvedic Health Centres providing the basic medical facilities to the population.

There are four Veterinary Institutions in the study area. Two veterinary dispensaries are located in the Pujarali

panchayat at Dhamechi and Sargheen village, whereas one veterinary institute is located at Chamyanna and Malayanna Panchayat each (**Figure7**).

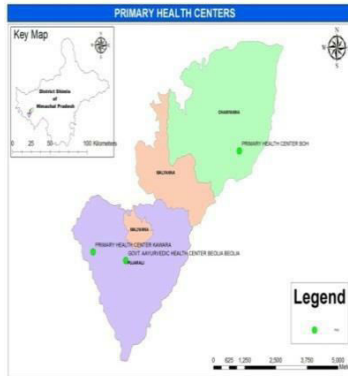


Figure 6 Medical Institutions in Study Area

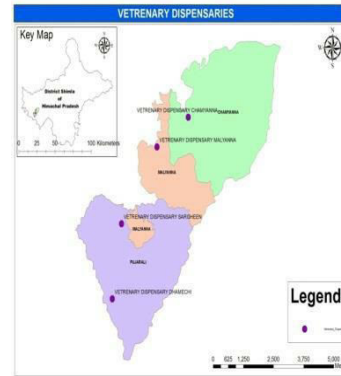


Figure 7 Veterinary Institutions in Study Area

3.2.3 Educational Institutions

The study revealed that there are five Govt. Primary Schools, one Govt. Middle School and one Govt. Senior Secondary School in the Chamyanna Panchayat and five Govt. Primary Schools and one govt. senior secondary school in the Pujarali Panchayat (**Figure 8**).

The study revealed that there are four anganwari centres in the Chamyanna panchayat and two anganwari centres in the Pujarali panchayat (**Figure 9**).

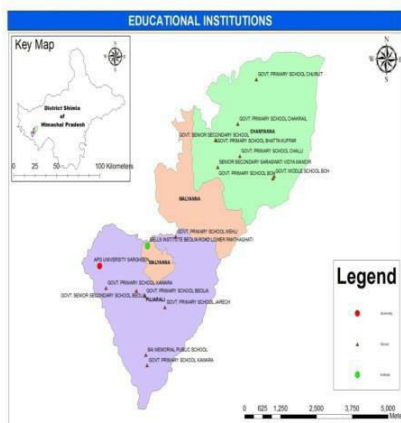


Figure 8 Educational Institutions in study area

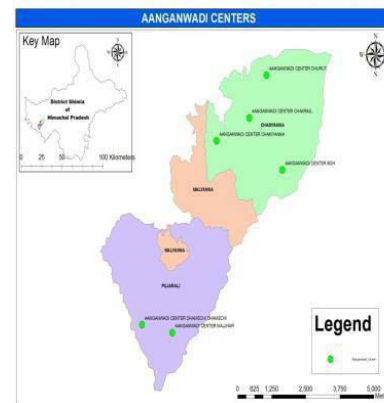


Figure 9 Anganwari Centres in the Study Area

3.3 Assets Created Under Various Schemes

The spirit of India lives in villages and only by changing the face of rural areas, there will be better future for the State and nation as a whole. The Rural Development Department is engaged in changing the face of rural Himachal through its many fold development schemes, working in a participatory manner with the rural folks. (Report of National Bank for Agriculture and Rural Development (NABARD), HP, 2009; Annual report of planning department Government of Himachal Pradesh, 2008; Annual Report., 2011; India Infrastructure Report, 2007; Report on Total Sanitation Campaign (TSC) in Himachal Pradesh, 2011).

3.3.1 Pradhan Mantri Gram Sadak Yojna (PMGSY): Rural roads

Pradhan Mantri Gram Sadak Yojna (PMGSY) is a centrally sponsored scheme with the primary objective of providing connectivity by way of an all-weather road to the eligible and un-connected habitations in the rural area. The study shows that all the villages are connected through the pedestrian ways. The pedestrian ways are constructed under the MNREGA Scheme (**Figure-10 and Figure- 11**).

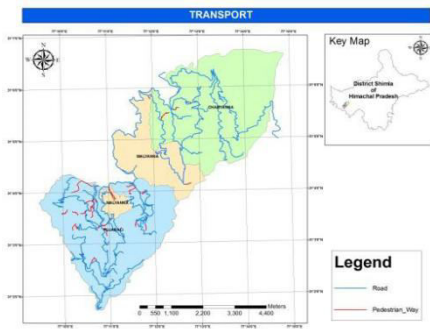


Figure10 Road map of study area



Figure11 Distribution of Pedestrian Way in the study area

3.3.2 Indira Awas Yojana/ Indira Awas Yojana: Rural Housing

Indira Awas Yojana (IAY) is a Centrally Sponsored Scheme. Under this Scheme, assistance of Rs. 38,500/- per beneficiary is being provided to Rural Below Poverty Line (BPL) families for the construction of new houses upto 31-3-2010. Atal Awas Yojana (AAY) is a State sponsored scheme aimed at provide housing facility to Rural BPL houseless families.

Figure12 shows that four houses are built under Awas yojna in Chamyanna panchyat as compared to one in Pujarali panchyat.

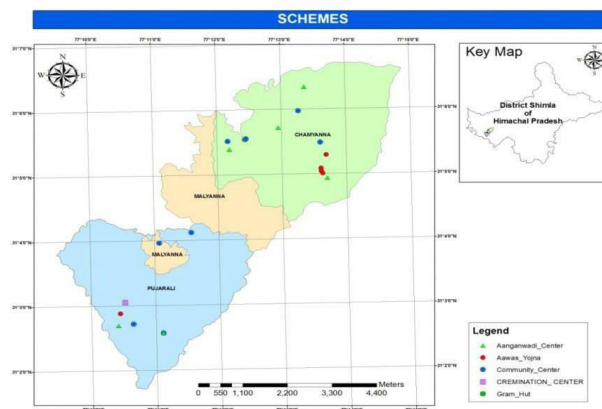


Figure 12 Distribution of Awas Yojna schemes, Aanganwadi Centres, Community Centres, Cremation Centre and Gram Hut.



Figure 13 House of Sh.Puran Chand S/O Sh. Chet Ram (Beneficiary) Vill.Kalhali, Chamyana

3.3.3 Mahatma Gandhi National Rural Employment Guarantee Act-2005 (MNREGA): Employment Generation Schemes

The Mahatma Gandhi National Rural Employment Guarantee Act (MNREGA) notified on 7th September, 2005, aims at better livelihood security of households in rural areas of the country by providing at least one hundred days of guaranteed wage employment, in a financial year, to every household whose adult members volunteer to do unskilled manual work permissible under MGNREGA.

The water tanks are mainly those spatial features in the study area which are constructed through different programmes like MGNREGA, Irrigation & Public Health Department (IPH), Panchayat and other funding agencies. Vegetables are mainly grown with the help of these water tanks. The construction of water tanks have benefited the villagers in two ways by providing the employment to the villagers under MGNREGA programme and by growing vegetables with the help of the storing water in these tanks for irrigation of the vegetables.

Figure13 & 14 shows the spatial distribution of water tanks in study area. There are 28 water tanks constructed in Pujarali panchyat as compared to 22 in Chamyanna panchyat. There are 5 water tanks in Malyanna panchyat.

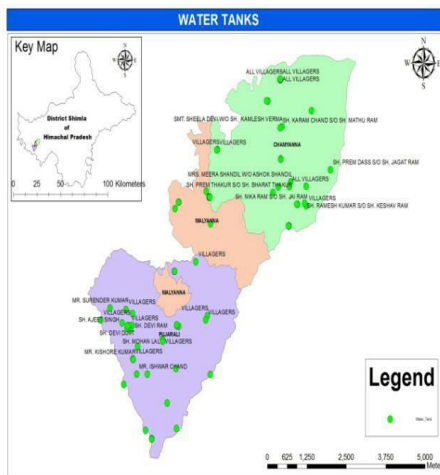


Figure 14 Distribution of water tanks

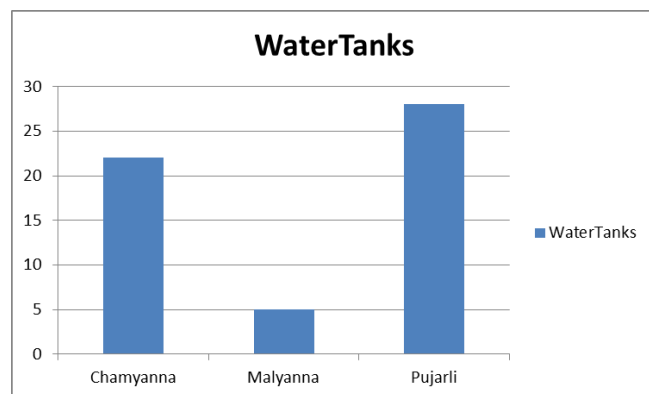


Figure 15 Comparison of establishment of water tanks



Figure16 Water Tank (Irrigation) Under MNREGA Scheme Beneficiary: Ishwar Chand s/o Late Sh. Kanshi Ram, Vill. Dhamechi (Sanctioned Amount Rs.50000/- Location N 31° 02' 46.5'' E 77° 10' 25.3''

3.3.4 Total Sanitation Campaign (TSC): Rural Sanitation

The main objectives of Total Sanitation Campaign (TSC) is to accelerate sanitation coverage, cover all schools and anganwadis with sanitation facilities and promote hygiene behaviour among students and teachers, encourage cost effective and appropriate technology development and application, and endeavour to reduce water and sanitation related diseases in the study area.

Figure 17 show the spatial distribution of sanitation facilities under the TSC programs. Six new toilets in Chamyanna panchyat and 4 new toilets have been built in Pujarali panchyat under TSC programme. However, there is only one garbage collection centre for three panchyats housed at chamyanna panchyat.

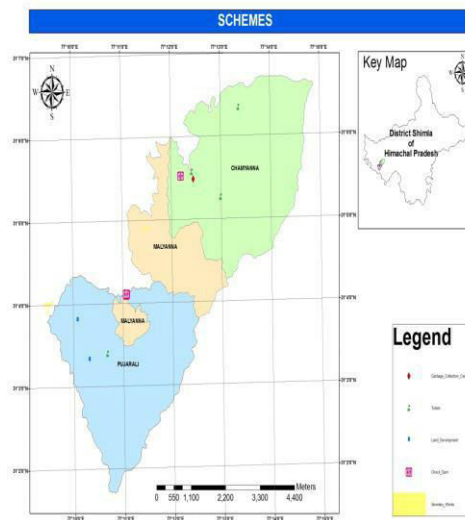


Figure 17 Distribution of Garbage Collection Centre, Toilets, Land Development, Check Dams, Sanitary Works.

7.5 Development of Common Property Resources (CPR) under various schemes

The other schemes include construction of Rain Shelters, Protection/Retaining Wall, Poly Houses, Garbage Collection Centre, Toilets, Land Development, Check Dams, Sanitary Works & Khel Maidan.

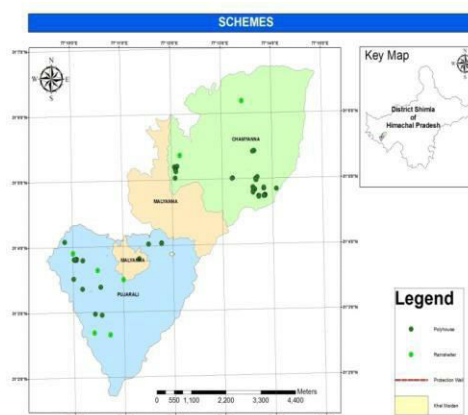


Figure 18 Distribution of Poly houses, Rain shelter, Protection Wall and Khel Maidan



CONCLUSIONS

- The study area covering Chamyanna, Malyanna and Pujarali panchyats presents entirely mountainous and valley shaped topography. The highest proportion of land is contributed to forest only. Although the study area is dominated by agricultural activities but the agriculture yield is low which can be attributed to hilly terrain and small size of land holding and insufficient irrigation facilities
- The construction of water tanks under various developmental scheme is enabling villagers to cultivate vegetables and enhance their income. The total number of water tank constructed under the above mentioned programmes is 50 with pujarli taking a lead with 28 water tanks. It is suggested to develop water tanks in both Panchayats to enhance the irrigation facilities. The suitable sites for the same purpose can be suggested with the help of GIS techniques (Jain and Subbaiah , 2007).
- The total population of Chamyanna, Malyanna and Pujarali panchyats is 1821 persons (Male 935, Female 886), 1360 Persons (Male 720, Female 640) and 3450 persons (Male 1750 and Female 1700) respectively.
- The Chamyanna Panchayat (having hilly terrain) has only one primary health centre. Due to the hilly terrain of Chamyanna Panchayat this medical institution fails to meet the requirements of the villagers because they have to travel more distance to avail medical facility. It is suggested to establish more health centre in the area.
- Although both the Panchayats, Chamyanna and Pujarali have sufficient educational institutions but it is again necessary to improve the existing infrastructure to meet the basic requirements of the local masses. Due to the hilly terrain of Chamyanna Panchayat the educational institutions are not sufficing the requirements of the villagers because students have to travel more distance to take the education. It is suggested to open more educational institutions in the area.
- The various developmental projects running under MNREGA provides employment to the local peoples in all the three panchyats.
- Four houses are constructed under IAY and AAY and in Chamyanna panchayat as compared to one house constructed in Pujarali panchayat.
- Three toilets have been constructed in Chamyanna panchayat as compared to 1 constructed in Pujarali panchayat TSC.
- The Pujarali panchayat has built 5 rainshelters as compared to 2 in Chamyanna panchayat.
- **In context of overall development and implementation of various development schemes, the Pujarali Panchayat takes lead followed by Chamyanna panchayat. However Malyanna panchayat is least developed in terms of socio-economic infrastructure/implementation of rural development schemes.**
- The Panchayat Resource Information System developed for three Panchayats of Shimla district depicts status of land use, water resources, socio-economic facilities created under various government schemes. This information can be used by planners and administrators for

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